

## Effectiveness of Entrepreneurship Education in Universities

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### ABSTRACT

*The purpose of this study is to systematically review the recent publications in Entrepreneurship Education in Universities (EEU) by considering the key characteristics and contributions of the articles. The study employed the Systematic Assessment Quantitative Technique (SQAT) developed by Australian researchers, Catherine Pickering and Jason Antony Byrne to identify and analyze 60 peer-review EEU articles. The result showed that Europe, followed by Africa had the highest geographical spread of EEU articles and none in South America. A bulk number of the EEU research was empirically founded, implying conduct of more conceptual studies as to provide clearer understanding of new norms and fundamental issues in EEU. Significantly, most of the articles revealed positive impacts of EEU on learning outcomes, although more on short term impacts. Therefore, this calls for more long term impact researches to corroborate the assumption that EEU produces entrepreneurial graduates that contribute to economic growth. Furthermore, methods of data collection for most of the EEU articles were through survey, multiplicity in methods of data collection should be encouraged in future EEU researches as to gain more insightful results of the studied and related issues in EEU.*

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## INTRODUCTION

Globally, entrepreneurship education is gaining prominence due to its ability to contribute to creation of job opportunities and economic growth (Arasti et al., 2012; Nian et al., 2014; Ghina et al., 2014; Badri & Hachicha, 2019), and this has stimulated its introduction in many universities' curricula (Nian et al., 2014; Bell & Bell, 2016). Undeniably, Entrepreneurship Education in Universities (EEU) remains a priority worldwide (De Carolis & Litzky, 2019), because of its target at promoting creativity, innovation and self-employment through the development of personal attributes and skills that form the foundation of an entrepreneurial mindset and behaviour (Rideout & Gray, 2013; Adamu, 2015). EEU is aimed at instilling in students the entrepreneurial culture and spirit, in addition to producing educated entrepreneurs and new ventures (US Department of Commerce, 2013). In reality, many entrepreneurs who felt that there were many opportunities for them to start their businesses without necessary entrepreneurial knowledge, skills and attitudes had faced a lot of challenges of which, many failed (Nian et al., 2014). With this, EEU should be propagated to adequately encourage and prepare graduates to be successful in their startups. This can be achieved through proper connection between the instructional objectives of entrepreneurship education, curriculum design and greater accuracy in the method of assessing their impacts (García-Rodríguez et al., 2016).

A sound and adequate research in the field of EEU will assist in the validation of the impacts of the learning outcomes of EEU. A lot of EEU researchers have established positive learning outcomes of EEU on students (Ghina et al., 2014), some of which include increase in students' entrepreneurial potential (García-Rodríguez et al., 2016), development of entrepreneurial intention on venture creation (Gerba, 2012; Hattab, 2014; Kuttim et al., 2014; Maresch et al., 2016; Barba-Sánchez & Atienza-Sahuquillo, 2017), acquisition of entrepreneurial skills and knowledge (Kirkwood et al., 2014; Hahn, 2019), broadening of their personal development and career planning (Rae & Woodier-Harris, 2013), encouraging and creating entrepreneurial interests in students (Vij & Ball, 2010), increase in their confidence and insights into the feasibility of new ventures (Kirkwood et al., 2014), influence in their level of self-efficacy (Egerová et al., 2017), and promotion of self-independence and self-reliance (Nwokolo, 2017). However, on the contrary, few other researchers found no direct positive influence of entrepreneurship education of students' entrepreneurial intention but rather on other variables like personal attitude and self-control (Samiono, 2018; Aditya, 2020). Although, EEU researches which confirmed positive impacts outweighed those with no impacts. Despite all these assertions, very few students start businesses after graduation (Kirkwood et al., 2014). Other researchers have argued on whether entrepreneurship education actually leads to the start-ups or only promotes positive entrepreneurial attitudes and intentions (Kirkwood et al., 2014). Botha & Ras (2016) are of the opinion that there is paucity of EEU researches on the actual statistics of the number of entrepreneurship graduate start-ups. This has raised the concern on whether the outcomes of EEU should be evaluated on long term rather than short-term basis (Kirkwood et al., 2014).

This study, therefore, is aimed at addressing this research gap by conducting a systematic review of EEU research. The research articles used in this review were obtained from sixteen databases: Emerald, Elsevier, Springer, Sage, Taylor & Francis, Wiley, JESTOR, Ingenta, Inderscience, MIT University, Oxford University, Cambridge University, Harvard University, Hein online, SRRN and ERIC. The choice of these databases were because they are known for publishing mainly peer review arti-

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cles. The application of peer review system on research is believed to be the most important and effective procedure for attaining good standards of quality in journals (Bornmann, 2011) thus, validating the utilization of high quality articles for this review.

Articles published within the last decade (2010 - 2019) were used for this study, and the intention of the selected timeline is aimed at reviewing the current publications which captured the latest happenings and the position of EEU globally. With the dynamism of the world today, and the paradigm shift in digital technology around the globe, the current publications would capture the impact of EEU on graduate start-ups, and the interventions and changes in meeting the current demands. This could range from government policies in education as regards the curriculum implementation and design or pedagogical objectives and methods. For instance, in the past, EE was meant for business students and taught in business schools only, however, in recent years, with the widespread call to provide students with entrepreneurial opportunities (Leger-Jarniou, 2012), most higher institutions have integrated it into their programs for all students regardless of their specialty (Ekpoh & Edet, 2011; Kuttim et al., 2014; Bell & Bell, 2016).

In order to achieve the purpose of this study, the key characteristics of the EEU articles were examined. The analyses of these key features of the downloaded articles were done based on the following: time distribution, geographical distribution, the type of article (conceptual vs. empirical), theories, themes and methods of data collection. Based on the analyses, the identified research gaps will provide a guide for future researches for both current and intending EEU scholars. For policy makers in both education and government positions, the identified gaps will highlight issues in these areas that require immediate attention.

The remaining part of this review is structured as follows: The literature review of previous systematically reviewed EEU articles. This study's review differs from prior reviews because it is well detailed and covers a more recent timeline. This is followed by a methodology section, which discusses the method and processes used in conducting this study. Next is the discussion of the findings, and highlights for future researches. Then finally, limitations, suggestions and conclusion.

## **LITERATURE REVIEW**

A thorough search of EEU literature from the downloaded articles in the sixteen databases used for this review within 2010-2019, revealed that only one systematic reviewed article has been published (Rideout & Gray, 2013).

Rideout & Gray (2013) conducted a systematic review and methodological critique of the empirical research on the outcomes of university-based Entrepreneurship education (E-ed). The study utilized 12 empirical articles that met the methodological (Storey Steps 4–6) standard. The reviewed articles were sourced from leading entrepreneurship scholarship repository websites, leading peer-reviewed entrepreneurship journals, (Journals searched included: Entrepreneurship Theory and Practice, Journal of Small Business Management, Journal of Business Venturing, Academy of Management Learning and Education, Technovation, Journal of International Entrepreneurship, International Entrepreneurship Management Journal, Journal of Entrepreneurship, Journal of Entrepreneurship Education, Entrepreneurship and Regional Development, and several others. The time bound for the review was stated as “last decade”. By implication, the last 10 years from the year of publishing the paper in 2013 would be from 2003 to 2012. The findings of the systematic review and methodological cri-

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tique of the research methods showed a variety of weaknesses in methodologies which undermine the assurance in the belief that entrepreneurship education can produce entrepreneurs and they recommended the conduct of future research on entrepreneurship education outcome.

The fact that only one published EEU previous systematic review article was identified, is clear evidence that there is lack of EEU systematic review articles. Although, the tendency of identifying other EEU systematically reviewed publications in the databases other than the used peer review publications is there, there is need for more systematic review articles to be published, and to a great extent peer review journals, because of their association with publication of standards and quality journals (Bornmann, 2011).

Analysis of the prior systematic review showed that the authors critiqued the research methods of the reviewed articles to determine how those articles supported the belief that EEU can produce entrepreneurs. The present EEU systematic review carries out a comprehensive review of EEU research, and the findings are beneficial to the societal call for development of entrepreneurial potentials through innovation and creativity for self-reliance, self-employment and economic growth. The next section outlines the methodology adopted in this study.

## RESEARCH METHODS

This study adopted the “Systematic Quantitative Assessment Technique” (SQAT) developed by Pickering and Byrne (2013) for the systematic review of the EEU articles. SQAT is preferred for this review because its methods and steps are explicit and reproducible (Pickering & Byrne, 2013, p. 11). This technique suggests five important steps in conducting an effective systematic review. Table 1 describes the application of the steps used in the review of this study. Sixty peer reviewed English EEU articles met the selection criteria from sixteen databases.

**Table 1.**  
**Description and Application of SQAT**

Step	Application in current study	
1.	Define topic	Entrepreneurship Education in Universities
2.	Formulate research questions	Six research questions: 1. What is the time distribution of EEU research articles? 2. In which countries were these articles written? 3. What kind of EEU articles were published? (Conceptual vs. Empirical) 4. What kind of theories were applied in these articles? 5. What are the specific themes these articles explored, and what were the major findings in each theme? 6. What research methods were used in data collection?
3.	Identify key Words	“Entrepreneurship Education”, “Universities”, “Students”
4.	Identify and search database	1. 16 databases utilized: Emerald, Elsevier, Springer, Sage, Taylor & Francis, Wiley, JESTOR, Ingenta, Inderscience, MIT University, Oxford University, Cambridge University, Harvard University, Hein online, SRRN and ERIC 2. “All in title” search using two search combinations: a. “Entrepreneurship Education” + “University” b. “Entrepreneurship Education” + “Student”

5.	Read and assess Publications	1. Abstracts of papers found were read to ensure that they were dealing with Entrepreneurship Education in Universities. 2. Literature reviews, book chapters and conference proceedings were not included; only peer-reviewed conceptual and empirical papers.
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Source: Authors' Tabulation (2020)

**Table 2.**  
**Number of Papers Downloaded in Databases**

	Database	Number of Papers
1	Emerald	20
2	Elsevier	11
3	Springer	3
4	Sage	8
5	Taylor & Francis	9
6	ERIC	7
7	Inderscience	2
8	Wiley	0
9	JESTOR	0
10	Ingenta	0
11	MIT University	0
12	Oxford University	0
13	Cambridge University	0
14	Harvard University	0
15	Hein online	0
16	SRRN	0
	<b>Total</b>	<b>60</b>

Source: Authors' Tabulation (2020)

Table 2 shows the list of all the sixteen databases searched for the EEU articles and the numbers from each database that met the search requirement. The database with the highest EEU research article was Emerald (20) followed by Elsevier (11). No matching EEU articles were found on the databases with zero.

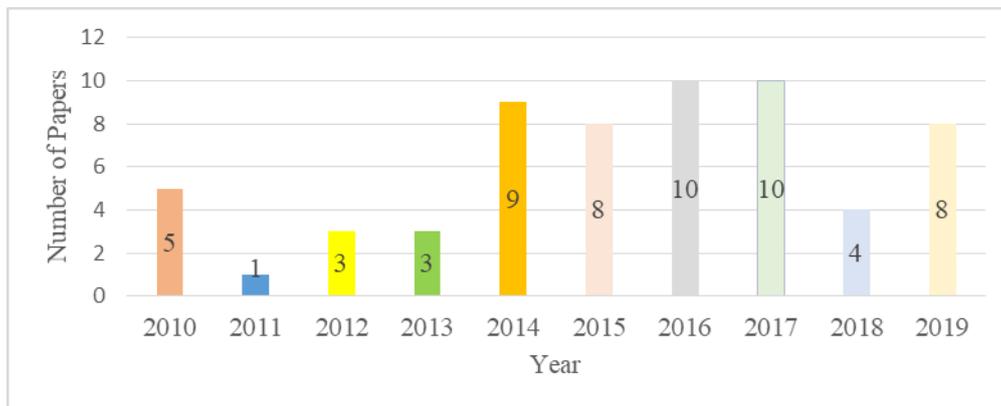
## RESULT AND DISCUSSION

The findings, discussions and suggestions for future studies were done based on the result of the analyses of the following key features of the downloaded articles: time distribution, geographical distribution, the type of article (conceptual vs. empirical), theories, themes and methods of data collection.

### Time Distribution of Articles on Entrepreneurship Education in Universities (EEU research)

The time distribution analysis for this research was based on the 60 articles published on entrepreneurship education in universities (EEU). These were articles published in the last decade from 2010 - 2019. The analysis showed that 2016 and 2017 witnessed the highest article publications (10 articles) each in the area being reviewed. The year with the least number of published articles in the area being reviewed was in

2011 with one article. The trend showed that articles were published every year but there were more publications in the middle and later years of the decade.



Source : Authors' Review (2020)

### Geographical Distribution of Articles on Entrepreneurship Education in Universities (EEU research)

Figure 2 presents the geographical distribution of the reviewed 60 articles on EEU research based on continents. The total number of the represented countries in the continents is 33. The number is less than the sum of the articles being reviewed because some countries witnessed more than one research carried out in them.

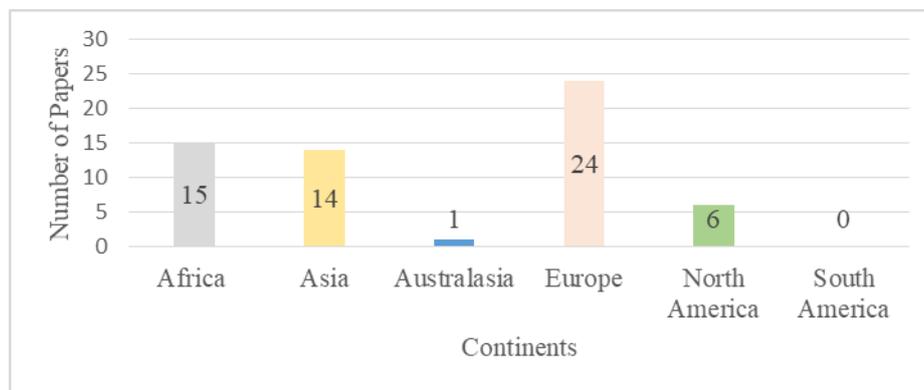


Figure 2. Geographical Distribution of Articles on EEU Research Based on Continents

Source: Authors' Review (2020)

The result of the analysis showed that the 60 reviewed articles were published in five continents. Europe had the highest number of articles (24), followed by Africa (15), Asia (14), North America (6), Australasia (1) and South America (0). It can be observed that only one EEU article was published in Australasia, while none was published in South America. These findings are surprising considering that the 2014 review of entrepreneurship education in Australia (the largest country in Australasia) revealed that entrepreneurship education is taught at more than 95% of all universities at the undergraduate level, and at 90% of all universities at the postgraduate level (Scandlon & McCormick, 2018). Similarly, in South America, hundreds of renowned universities offer entrepreneurial courses at both undergraduate and postgraduate lev-

els (Courses in Entrepreneurship in South America, 2020). This, therefore, calls for more peer review publications on EEU researches carried out in Australasia and South America.

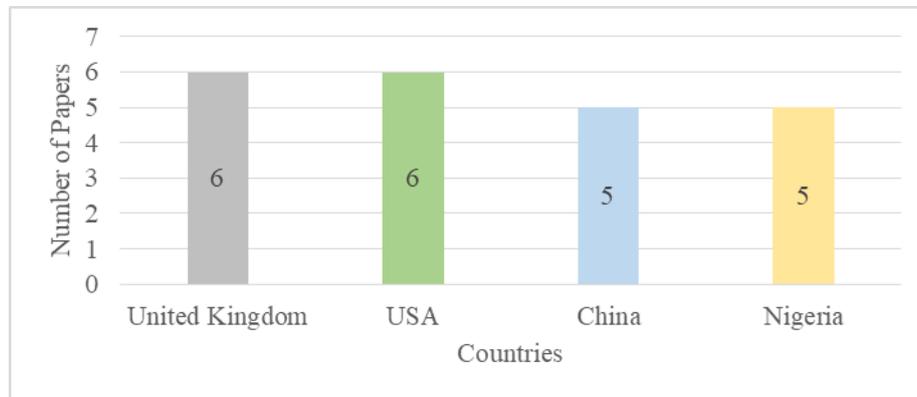


Figure 3. Top 4 Countries on EEU Research Publications

Source: Authors' Review (2020)

A total of 33 countries were represented in the systematic review of EEU articles. The top four countries were shown graphically in descending order. The United Kingdom and USA had the highest article publications in the context being reviewed with six articles each, followed by China and Nigeria with five articles each. Many countries were not represented in the article publications of EEU research. The percentage rate of countries' participation is just 17% of the total number of countries in the world (196) including Taiwan (World Map, 2019). This is very small and unexpected because with the level of importance accorded to EEU as the most innovative ways of combating graduate unemployment globally (Gyan, 2015), its ability to empower people with the necessary skills, innovation and creativity to start their own businesses (Premand, 2016), and the stimulation of economic growth (Nian et al., 2014), it is important for every country to be involved in conducting EEU researches. This will enable institutions of higher learning to empirically determine the level of entrepreneurial outcomes and its impact on their economy. With many countries' involvement in EEU research, identified gaps would provide a better understanding of the state of research and highlight as to where research investigation is needed for better policy formulation and guidance for future research (Yatu et al., 2018). It is worthy of note that articles used in this study were limited to only peer reviewed English EEU research publications.

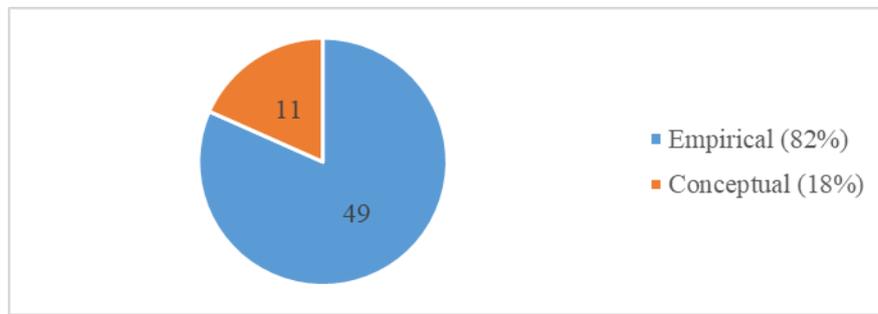
### Article Type

The 60 articles used in the systematic review of EEU research were classified into two types: conceptual and empirical. Conceptual papers are articles without data that focus on integration and propositioning of new relationships among constructs, thus, aimed at developing logical and complete arguments for associations, and building theory by offering propositions regarding previously untested relationships (Gilson & Goldberg, 2015). Empirical articles, on the other hand, are researches that report the results of study that use data based on actual observation or experimentation (Gilson & Goldberg, 2015). Figure 4 shows the breakdown of the 60 EEU articles based on the conceptual/empirical classification.

Figure 4. Article Type Breakdown

Source: Authors' Review (2020)

The analysis showed that 82% (49) of the 60 reviewed EEU articles were empirical in nature, while 18% (11) were conceptual. Empirical research is important as it validates existing theories and concepts. However, there are limited number of conceptual articles in the review. According to Watts (2011), conceptual articles, unlike empirical ones, are important scholarly contributions to the literature. They help to facilitate de-



velopment of theory, practice, and professional issues in ways that are unique to the conceptual framework. In line with this, O'Connor (2013), said that EE lacked a theoretically conceptual grounding that would assist policy makers and educators because of the multi-definitional perspective of entrepreneurship, which had proven the difficulty of substantiating the economic benefit of EE. Therefore, there is need for more conceptual EEU research to contribute to a better understanding of emerging norms and factors.

### Theory Breakdown of EEU Research

Figure 5 shows the breakdown of the theories used in the EEU research. There were 25 different theories applied to the reviewed EEU research. Only the top four of the theories used were shown in Figure 5.

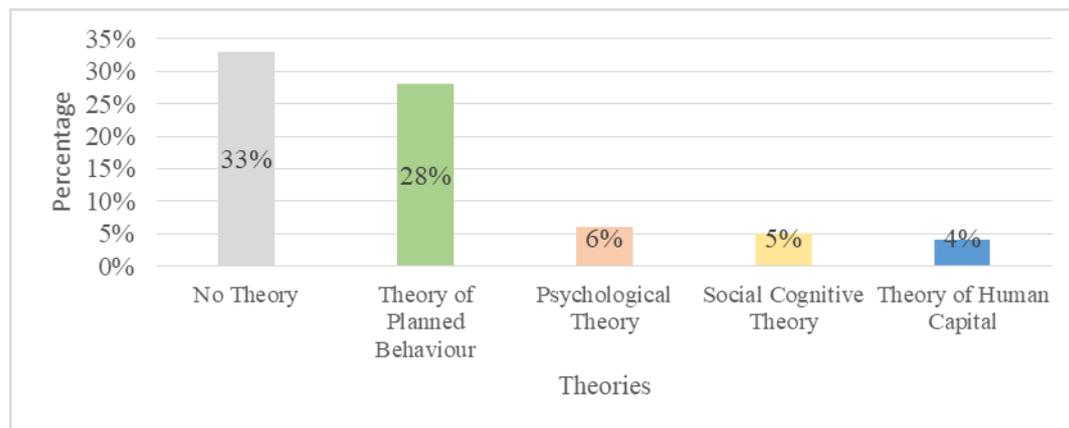


Figure 5. Theory Breakdown

Source: Authors' Review (2020)

The breakdown showed that 33 percent of the reviewed articles did not adopt any theory in their research. The top four applied theories in the review of EEU articles were as follows: Theory of Planned Behaviour (TPB) (28%) was the most widely applied theory followed by Psychological theory (6%), Social Cognitive Theory (5%), and Theory of Human Capital (4%). Other theories applied were Prospect Theory, Social Learning Theory, Entrepreneurship Theory, Institutional Theory, Theory of Entrepreneurship Education, Theory of Capital Structure, Locus of Control Theory, Entrepreneurship Cognition Theory, Theory of Entrepreneurial Event, Moral Development Theory, Sex-Role Socialization Theory, Occupational Theory Perspective, Achievement Motivation Theory, Theory of Emotion, Emergent Theory, Theory of Construct Alignment, Social Identity Theory, Theory of Personality, Theory of Entrepreneurial Role Models, Social Content Theory, and Self-Regulation Theory. Some of the reviewed articles applied more than one theory in their research.

The theory of planned behaviour provides an insight on conscious decision to act, that is, student entrepreneurial intention can be translated into action (venture creation) through EE (Millman et al., 2010; Gerba, 2012; Hattab, 2014; Mahendra et al., 2017; Otache, 2019). Psychological theory helps to examine and outline the development of personality dimension or entrepreneurial behaviour (García-Rodríguez et al., 2016; Premand et al., 2016; Ismail et al., 2018). Social Cognitive Theory (SCT) exposes interactions between personal cognitive variables (self-efficacy and intention), with environmental factors (EE learning), and the outcome in human functioning (subsequent entrepreneurial behaviour) (Rideout & Gray, 2013; Marques et al., 2018; Cui et al., 2019). Theory of human capital presents insight on how entrepreneurship education and training act as a tool for acquiring skills and knowledge, improving human capital, stimulating labour, productivity and boosting the levels of technology (Solesvik et al., 2013; Westhead & Solesvik, 2015; Maresch et al., 2016; Kalimasi & Herman, 2016). Prospect theory provides insight on the relationship between a person's assessment of risk in a given situation, ability to take or avoid risk and the intention to become an entrepreneur (Solevik et al., 2013). A good percentage of the articles analyzed did not adopt any theory. On this basis, there is need for development and use of more theories in EEU articles. Rideout & Gray (2013) suggested an urgent need for scholars to conduct more rigorous research to support the development of theories of entrepreneurship education because it is a critical element of economic growth.

### EEU Research Theme

A critical analysis of the reviewed 60 EEU articles revealed that they could be categorized into three different groups based on the themes that they explored. The number of the articles sorted out according to the themes are presented in Figure 6.

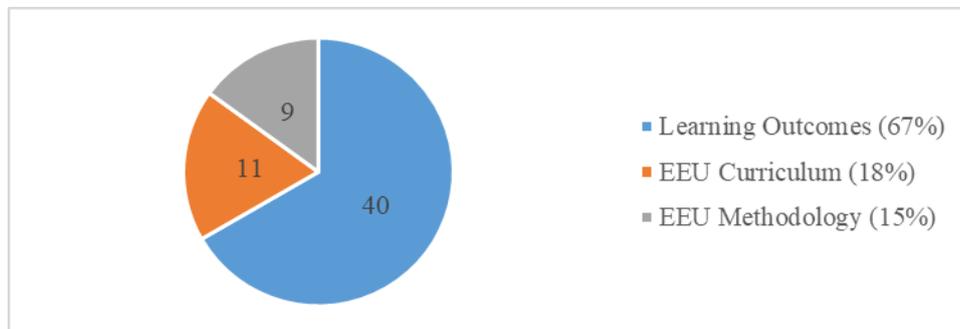


Figure 6. EEU Research Themes

Source: Authors' Review (2020)

The theme with the highest publications is Learning Outcome with 67% (40 of the 60 articles). These are articles which researched on the entrepreneurial outcomes of students who participated in EEU. According to Azizi & Mahmoudi (2018), learning outcomes are what a learner is expected to know, understand, or be able to show after the completion of a learning process. The identified learning outcomes of EEU from the reviewed articles can be categorized into subjective/personal changes (short term/lower level impact indicators) such as entrepreneurial intention, knowledge, skills etc. and objective/socio-economic changes (long term/higher level impact indicator) such as startups, venture performance and socio-economic impacts (Nabi et al., 2017). Entrepreneurial intention was the most researched of learning outcome of the reviewed articles and most of the scholars revealed that students' exposure to EEU increases their entrepreneurial intention (e.g., Ekpoh & Edet, 2011; Hattab, 2014; Kuttim et al., 2014; Del Río et al., 2016; Barba-Sánchez & Atienza-Sahuquillo, 2017). Some other articles revealed interactive effects of gender, university type, and course of study on the entrepreneurial intention of students (e.g., Millman, et al., 2010; Zhang et al., 2014), and on entrepreneurial orientation (Marques et al., 2018). There were reported higher intensity of entrepreneurial intention on students of entrepreneurship and business studies than those of engineering, non-business or non-entrepreneurship students (e.g., Gerba, 2012; Solesvik et al., 2013; Westhead & Solesvik, 2016; Maresch et al., 2016). Other learning outcomes of EEU from the reviewed articles showed increased self-confidence, determination, self-belief, drive to succeed, and more insights into feasibility of venture creation (Vij & Ball, 2010; Kirkwood et al., 2014). In as much as most of the reviewed articles revealed positive impacts of EEU, some students were faced with some obstacles in striding into an entrepreneurial path due to fear of failure and unwillingness to take risks (Belwal et al., 2015). The long term learning outcomes of EEU from the reviewed articles showed that EEU led to small increase in self-employment (Premand et al., 2016), and more entrepreneurship graduates started businesses than non-entrepreneurship graduates (Botha & Ras 2016).

The findings of the learning outcome articles showed a relatively positive impacts of EEU on the outcomes. However, it was discovered that there were more publi-

cations on the effects of EEU on lower level impact indicators than the higher-level impact indicators. Therefore, more researches on the long term learning outcomes should be encouraged. In support of this, Botha & Ras (2016), asserted that although students show strong entrepreneurial intentions after participating in entrepreneurship courses, there are inadequate researches to show the start-up rate of entrepreneurship graduates, and therefore the advocacy for more researches on the start-up rate and venture performance. This will enable policy makers in both education and political arena to cross check if they are achieving the expected outcome of EEU or not, with a view to possible amendments, if any.

EEU curriculum is the second most common theme among the reviewed articles with 18% (11 of the 60 EEU articles). These are studies that researched on the appropriateness and effectiveness of EEU programs. The analysis of EEU curriculum revealed the need for total review of universities' curriculum and a holistic integration of EE across the university-wide curricula to encourage the acquisition of the necessary entrepreneurship skills for all students irrespective of their area of study for self-employment and self-reliance (Adamu, 2015; Kalimasi & Herman, 2016; Onuma, 2016). EEU curriculum should be able to provide theoretical knowledge as well as develop the students' entrepreneurial skills, behaviour, attitudes, and mindset that will equip them for a start-up or engage in entrepreneurship activities (Nian et al., 2014; Adamu, 2015). The lapses of the present EEU curriculum were the inclination to theoretical content rather than practical application of entrepreneurial skills (Kapasi & Grekova, 2017), abstract guidance without specific recommendation of what should be in the program (Gedeon, 2014). Therefore, in planning EEU curriculum, the needs of the students should be considered and incorporated (Bridge et al., 2010; Tang et al., 2014), there should be a proper entrepreneurship framework for guidance (Gedeon, 2014) and the integration of a multidisciplinary content that focuses on experiential and service learning (Wang et al. 2010). Based on the above findings, there is need to review the EEU curriculum to be more practically oriented and also factor in the teaching needs of other disciplines. More research in the EEU curriculum should be encouraged as to identify content areas that should be inculcated or excluded in the curriculum for utmost results. As Kalimasi & Herman (2016) were of the opinion that integration of EEU's curriculum is limited, largely because its implementation does not fit into the pedagogical needs of some disciplines.

The third and least most explored theme is EEU methodology with 15%. These are articles that researched on the methods or approaches for delivering EEU. The review of the EEU methodology articles shows that scholars advocated for the adoption of experiential practical activities rather than the traditional teaching methods (lecture method) (Olukundun et al., 2018), delivery through group projects, case study, individual project, development of a new venture creation project, and problem-solving (Arasti et al., 2012). There is an opinion that EEU methodology should employ emotional dimension and critical thinking that increases entrepreneurial motivation for the development of students' entrepreneurial psychological and social skills (Farhangmehr et al., 2016). Some articles encourage proper management and use of the material and intellectual resources that assure effective students' learning (Ghina et al., 2014; Nayak et al. 2018).

Based on the findings, few studies have been conducted in the teaching methods of EEU. In affirmation, Arasti et al. (2012) stated that there are few studies conducted in the area of teaching methods, although EE has no universal pedagogical methodology, the objectives, contents, and context determine the choice of technique. Therefore, there is need for more research in the teaching methods of EEU.

## Data Collection Methods

Figure 7 showed the summary of the four data collection methods utilized in the analysis of 49 empirical EEU researches reviewed. The analysis indicated that some of the articles used more than one method in collecting their data.

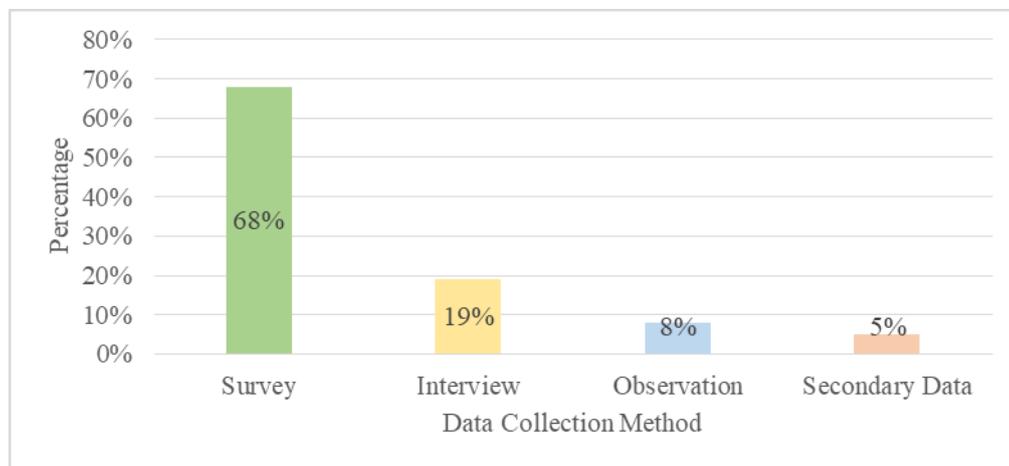


Figure 7. Data Collection Method

Source: Authors' Review (2020)

Figure 7 showed that 68% of the empirically reviewed paper collected their data through survey (e.g. Gerba, 2012; Hattab, 2014; Kuttim et al., 2014; Nwokolo 2017; Ismail et al., 2018). The second most used method of data collection is interview with 19% (e.g. Ronkko & Lepisto, 2015; Bell & Bell, 2016; Botha & Ras, 2016). This is followed by observation (8%) (e.g. Kirkwood et al., 2014; Shih & Huang, 2017; Nayak et al., 2018). The least is secondary data with 5% (e.g. Ghina et al., 2014; Kalimasi & Herman, 2016; Kapasi & Huang, 2017). Majority of the reviewed EEU research articles used primary sources for data collection of which survey was the most used. According to Smith (2013), scholars have argued that the time for the use of survey is fast becoming obsolete, and therefore, advocated for the combination of methods. No method of data collection is perfect, each method has its own merits, costs and risks, but the inherent weakness of each method can possibly be offset by using a mix method (wolf et al., 2016). In view of this, future studies should employ a combination of intra primary data or inter secondary data.

## CONCLUSION

This study systematically reviewed 60 peer-review journal articles on EEU. This was done through a novel approach that focused on six key categories, namely: the time distribution of the articles, geographical distribution of the articles, article type, theories used, research themes and methods of data collection. There were discussions on the outcomes of the analyses of the reviewed articles and directions for future research recommended. Although EEU has attracted reasonable scholarly attention, there are still paucity of scholarship on long term impact outcomes of EEU, considering the increasing interest in EEU as the engine for the production of entrepreneurial potentials that would contribute to economic growth and job opportunities.

However, the authors acknowledged that some limitations exist in this study. These limitations should be taken care of in future EEU research. Firstly, the time bound for this study is for the articles published in the last decade (2010 – 2019). Future research may include earlier years or decades, as this may provide some useful insights. The second limitation is that this study used “all in title” search using two search combinations: “Entrepreneurship Education” + “University” and “Entrepreneurship Education” + “Student”, however, adding extra search combinations in the sixteen peer review databases will definitely produce more EEU articles. Future systematic reviews can widen the scope of search combination to gain further insight into EEU research. Another limitation is that only English journal articles were included in the review; book chapters and conference proceedings were excluded. This was done in accordance with the SQAT methodology to maintain the high quality of articles reviewed. However, there is potentially very useful insight in book chapters and conference proceedings, which future research would do well to include.

Notwithstanding these limitations, this study is important as it provides a clear picture on the current state of EEU research and gives a clear direction on the areas that future research should address in order to ensure EEU is properly implemented to produce graduates who will be self-employed and create jobs that will cause economic growth.

## REFERENCES

- Adamu, L. E. (2015). Repositioning Nigeria University Education for Economic Development through Entrepreneurship Education. *Journal of Education and Practice*, 6(25), 84-89.
- Aditya, S. (2020). The Influence of Attitude, Subjective Norms, Perception of Self-control and Entrepreneurship Education on Entrepreneurial Intentions. *Journal of Business and Behavioural Entrepreneurship*, 4(2), 66-83.
- Afolabi, M. O., Kareem, F. A., Okubanjo, I. O., Ogunbanjo, O. A., & Aninkan, O. O. (2017). Effect of Entrepreneurship Education on Self-Employment Initiatives among Nigerian Science & Technology Students. *Journal of Education and Practice*, 8(15), 44-51.
- Arasti, Z., Falavarjani, M. K., & Imanipour, N. (2012). A Study of Teaching Methods in Entrepreneurship Education for Graduate Students. *Higher Education Studies*, 2(1), 2-10.
- Azizi, M., & Mahmoudi, R. (2018). Learning outcomes of entrepreneurship education: Entrepreneurship education for knowing, doing, being, and living together. *Journal of Education for Business*, 94(3), 148-156.
- Badri, R., & Hachicha, N. (2019). Entrepreneurship education and its impact on students' intention to start up: A sample case study of students from two Tunisian universities. *The International Journal of Management Education*, 17(2), 182-190.
- Barba-Sánchez, V., & Atienza-Sahuquillo, C. (2017). Entrepreneurial intention among engineering students: The role of entrepreneurship education. *European Research on Management and Business Economics*, 24(1), 53-61.
- Bell, R., & Bell, H. (2016). Replicating the networking, mentoring and venture creation benefits of entrepreneurship centres on a shoestring: A student-centred approach to entrepreneurship education and venture creation. *Industry and Higher Education*, 30(5), 334-343.
- Belwal, R., Al Balushi, H., & Belwal, S. (2015). Students' perception of entrepreneur-

- ship and enterprise education in Oman. *Education+ Training*, 57(8-9), 924 – 947.
- Bornmann, L. (2011). Scientific peer review. *Annual Review of Information Science and Technology*, 45(1), 197–245.
- Botha, M. & Ras, R. (2016). Entrepreneurship education: Enhancing or discouraging graduate start-up at the University of Pretoria. *Africa Education Review*, 13 (2), 96-114.
- Bridge, S., Hegarty, C., & Porter, S. (2010). Rediscovering enterprise: developing appropriate university entrepreneurship education. *Education+ Training*, 52(8-9), 722-734.
- Courses in Entrepreneurship in South America (2020). Retrieved from <https://www.academiccourses.com/Courses/Entrepreneurship/South-America/>
- Cui, J., Sun, J., & Bell, R. (2019). The impact of entrepreneurship education on the entrepreneurial mindset of college students in China: The mediating role of inspiration and the role of educational attributes. *The International Journal of Management Education*, 100296.
- Damáσιο, M. J., & Bicacro, J. (2017). Entrepreneurship education for film and media arts: How can we teach entrepreneurship to students in the creative disciplines? *Industry and Higher Education*, 31(4), 253-266.
- De Carolis, D. M., & Litzky, B. E. (2019). Unleashing the potential of university entrepreneurship education. *New England Journal of Entrepreneurship*, 22(1), 56-66.
- Del Río, M. D. L. C., Peris-Ortiz, M., Álvarez-García, J., & Rueda-Armengot, C. (2016). Entrepreneurial intentions and entrepreneurship education to University students in Portugal. *Technology, Innovation and Education*, 2(1), 7.
- Ding, Y. Y. (2017). The constraints of innovation and entrepreneurship education for university students. *Journal of Interdisciplinary Mathematics*, 20(6-7), 1431-1434.
- Egerová, D., Eger, L., & Mičík, M. (2017). Does entrepreneurship education matter? Business students' perspectives. *Tertiary Education and Management*, 23(4), 319-333.
- Ekpoh, U. I., & Edet, A. O. (2011). Entrepreneurship education and career intentions of tertiary education students in Akwa Ibom and Cross River States, Nigeria. *International Education Studies*, 4(1), 172-178.
- Farhangmehr, M., Gonçalves, P., Sarmento, M., McCracken, M., & Matlay, H. (2016). Predicting entrepreneurial motivation among university students: The role of entrepreneurship education. *Education+ Training*, 58(7-8), 861-881.
- García-Rodríguez, F. J., Ruiz-Rosa, C. I., Gil-Soto, E., & Gutiérrez-Taño, D. (2016). Promoting entrepreneurship education among university students: design and evaluation of an intervention programme. *Culture and Education*, 28(3), 565-598.
- Gedeon, S. A. (2014). Application of best practices in university entrepreneurship education. *European Journal of Training and Development*, 38 (3), 231 - 253.
- Gerba, D. T. (2012). Impact of entrepreneurship education on entrepreneurial intentions of business and engineering students in Ethiopia. *African Journal of Economic and Management Studies*, 3(2), 258-277.
- Ghina, A., Simatupang, T. M., & Gustomo, A. (2014). A Systematic Framework for Entrepreneurship Education within a University Context. *International Education Studies*, 7(12), 1-19.
- Gilson, L. L. & Goldberg, C. B. (2015) Editors' comment. *Group and Organization Management*, 40 (2), 127-130.
-

- Gyan, M. K., Attah, E. Y., & Asare-Appiah, M. (2015). Empowering Ghanaian Polytechnic Students through Entrepreneurship and Competency Based Education: A Case Study of Takoradi Polytechnic. *Journal of Education and Practice*, 6(28), 1-5.
- Hahn, D., Minola, T., Bosio, G., & Cassia, L. (2019). The impact of entrepreneurship education on university students' entrepreneurial skills: a family embeddedness perspective. *Small Business Economics*, 1-26.
- Hasan, S. M., Khan, E. A., & Nabi, M. N. U. (2017). Entrepreneurial education at university level and entrepreneurship development. *Education+ Training*, 59(7-8) 888-906.
- Hattab, H. W. (2014). Impact of entrepreneurship education on entrepreneurial intentions of university students in Egypt. *The Journal of Entrepreneurship*, 23(1), 1-18.
- Ismail, A. B. T., Sawang, S., & Zolin, R. (2018). Entrepreneurship education pedagogy: teacher-student-centred paradox. *Education + Training*, 60(2), 168-184.
- Iwu, C. G., Opute, P. A., Nchu, R., Eresia-Eke, C., Tengeh, R. K., Jaiyeoba, O., & Aliyu, O. A. (2019). Entrepreneurship education, curriculum and lecturer-competency as antecedents of student entrepreneurial intention. *The International Journal of Management Education*, 100295.
- Jones, S., & Underwood, S. (2017). Understanding students' emotional reactions to entrepreneurship education. *Education+ Training*, 59(7-8), 657-671.
- Kalimasi, P. J., & Herman, C. (2016). Integrating entrepreneurship education across university-wide curricula: The case of two public universities in Tanzania. *Industry and Higher Education*, 30(5), 344-354.
- Kapasi, I., & Grekova, G. (2018). What do students think of self-determined learning in entrepreneurship education? *Education+ Training*, 60(7-8), 841-856.
- Kirkwood, J., Dwyer, K., & Gray, B. (2014). Students' reflections on the value of an entrepreneurship education. *The International Journal of Management Education*, 12(3), 307-316.
- Küttim, M., Kallaste, M., Venesaar, U., & Kiis, A. (2014). Entrepreneurship education at university level and students' entrepreneurial intentions. *Procedia-Social and Behavioral Sciences*, 110, 658-668.
- Lam, W. (2010). Delivery, Student Engagement and the Implementation of Good Practice in Entrepreneurship Education: Learning from the UK's New Entrepreneur Scholarship Initiative. *Industry and Higher Education*, 24(6), 467-473.
- Léger-Jarniou, C. (2012). Student entrepreneurship clusters: A new way for entrepreneurship education? *Industry and Higher Education*, 26(3), 177-191.
- Lourenço, F., Sappleton, N., & Cheng, R. (2015). Gender and business ethics of enterprise students and nascent entrepreneurs engaged in entrepreneurship education. *The Journal of Entrepreneurship*, 24(2), 186-203.
- Mahendra, A. M., Djatmika, E. T., & Hermawan, A. (2017). The Effect of Entrepreneurship Education on Entrepreneurial Intention Mediated by Motivation and Attitude among Management Students, State University of Malang, Indonesia. *International Education Studies*, 10(9), 61-69.
- Maresch, D., Harms, R., Kailer, N., & Wimmer-Wurm, B. (2016). The impact of entrepreneurship education on the entrepreneurial intention of students in science and engineering versus business studies university programs. *Technological forecasting and social change*, 104, 172-179.
-

- Marques, C. S., Santos, G., Galvão, A., Mascarenhas, C., & Justino, E. (2018). Entrepreneurship education, gender and family background as antecedents on the entrepreneurial orientation of university students. *International Journal of Innovation Science*, 10(1), 58-70.
- Michelle, K., & Tendai, C. (2016). The association of entrepreneurship education and entrepreneurial intention among university students in the Eastern Cape Province of South Africa. *International Journal of Educational Sciences*, 12(3), 200-211.
- Millman, C., Li, Z., Matlay, H., & Wong, W. C. (2010). Entrepreneurship education and students' internet entrepreneurship intentions. *Journal of Small Business and Enterprise Development*, 17(4), 569-590.
- Murugesan, R., & Jayavelu, R. (2015). Testing the impact of entrepreneurship education on business, engineering and arts and science students using the theory of planned behaviour. *Journal of Entrepreneurship in Emerging Economies*, 7(3), 256 – 275.
- Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. (2017). The impact of entrepreneurship education in higher education: A systematic review and research agenda. *Academy of Management Learning & Education*, 16(2), 277-299.
- Nayak, G., Salovaara, I. M., & Wade, J. (2019). Self-regulated learning in refugee entrepreneurship education: a university-based program for tibetan entrepreneurs in India. *Diaspora, Indigenous, and Minority Education*, 13(2), 81-96.
- Nian, T. Y., Bakar, R., & Islam, M. (2014). Students' Perception on Entrepreneurship Education: The Case of Universiti Malaysia Perlis. *International Education Studies*, 7(10), 40-49.
- Nielsen, S. L., & Stovang, P. (2015). DesUni: university entrepreneurship education through design thinking. *Education + Training*, 57(8-9), 977–991.
- Nwokolo, E. E. (2017). Entrepreneurship education key to reducing dependency among university graduates in South Africa. *International Journal of Educational Sciences*, 19(1), 54-63.
- O'Connor, A. (2013). A conceptual framework for entrepreneurship education policy: meeting government and economic purpose. *Journal of Business Venturing* 28 (4), 546-563.
- Olokundun, M., Moses, C. L., Iyiola, O., Ibidunni, S., Ogbari, M., Peter, F., & Borishade, T. (2018). The effect of non-traditional teaching methods in entrepreneurship education on students' entrepreneurial interest and business startups: A data article. *Data in brief*, 19, 16-20.
- Onuma, N. (2016). Rationale for Students Preparation and Entrepreneurship Education in the Face of Global Economic Crisis in Nigeria. *Journal of Education and Practice*, 7(12), 200-204.
- Otache, I. (2019). Entrepreneurship education and undergraduate students' self-and paid-employment intentions. *Education+ Training*, 61 (1), 46-64.
- Pickering, C., & Byrne, J. (2014). The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early-career researchers. *Higher Education Research & Development*, 33(3), 534–548.
- Premand, P., Brodmann, S., Almeida, R., Grun, R., & Barouni, M. (2016). Entrepreneurship education and entry into self-employment among university graduates. *World Development*, 77, 311-327.
- Rae, D., & Woodier-Harris, N. R. (2013). How does enterprise and entrepreneurship education influence postgraduate students' career intentions in the New Era economy? *Education+ Training*, 55(8-9), 926-948.
-

- Otache, I. (2019). Entrepreneurship education and undergraduate students' self-and paid-employment intentions. *Education+ Training*, 61 (1), 46-64.
- Pickering, C., & Byrne, J. (2014). The benefits of publishing systematic quantitative literature reviews for PhD candidates and other early-career researchers. *Higher Education Research & Development*, 33(3), 534-548.
- Premand, P., Brodmann, S., Almeida, R., Grun, R., & Barouni, M. (2016). Entrepreneurship education and entry into self-employment among university graduates. *World Development*, 77, 311-327.
- Rae, D., & Woodier-Harris, N. R. (2013). How does enterprise and entrepreneurship education influence postgraduate students' career intentions in the New Era economy? *Education+ Training*, 55(8-9), 926-948.
- Richard E. Watts (2011) Developing a Conceptual Article for Publication in Counseling Journals. *Journal of counseling and development* 89, 308-312.
- Rideout, E. C., & Gray, D. O. (2013). Does entrepreneurship education really work? A review and methodological critique of the empirical literature on the effects of university-based entrepreneurship education. *Journal of Small Business Management*, 51(3), 329-351.
- Rönkkö, M.-L., & Lepistö, J. (2015). Finnish student teachers' critical conceptions of entrepreneurship education. *Journal of Enterprising Communities: People and Places in the Global Economy*, 9(1), 61-75.
- Samiono, B., Akbar, M., & Hamidah, H. (2018). The Effect of Entrepreneurship Education on Entrepreneurship Intention of Students of Private Islamic Universities in Jakarta. *Journal of Business and Behavioural Entrepreneurship*, 2(2), 94-102.
- Scandlon, C. & McCormack, S. (2018). Challenges and Opportunities: A Closer Look at Entrepreneurship Education in Australian Universities. Retrieved from <https://blog.uin.org/2018/12/challenges-opportunities-closer-look-entrepreneurship-education-australian-universities/>
- Schediwy, L., Loots, E., & Bhansing, P. (2018). With their feet on the ground: a quantitative study of music students' attitudes towards entrepreneurship education. *Journal of Education and Work*, 31(7-8), 611-627.
- Shih, T., & Huang, Y. Y. (2017). A case study on technology entrepreneurship education at a Taiwanese research university. *Asia Pacific Management Review*, 22(4), 202-211.
- Smith, T. W. 2013. Survey-research paradigms old and new. *Int. J. Public Opin. Res.*, 25(2), 218-29.
- Solesvik, M. Z., Westhead, P., Matlay, H., & Parsyak, V. N. (2013). Entrepreneurial assets and mindsets: benefit from university entrepreneurship education investment. *Education+ Training*, 55(8-9), 748-762.
- Tang, M., Chen, X., Li, Q., & Lu, Y. (2014). Does Chinese university entrepreneurship education fit students' needs? *Journal of Entrepreneurship in Emerging Economies*, 6(2), 163 - 178.
- Tegtmeier, S., & Mitra, J. (2015). Gender perspectives on university education and entrepreneurship. *International Journal of Gender and Entrepreneurship*, 7(3), 254 - 271.
- US Department of Commerce. (2013). The innovative and entrepreneurial university: Higher education, innovation and entrepreneurship in focus (pp. 18-20). Office of Innovation and Entrepreneurship, Economic Development Administration. Retrieved from [http://www.eda.gov/pdf/The\\_Innovative\\_and\\_Entrepreneurial\\_University\\_Report.pdf](http://www.eda.gov/pdf/The_Innovative_and_Entrepreneurial_University_Report.pdf)
-

- Vij, V., & Ball, S. (2010). Exploring the impact of entrepreneurship education on university nonbusiness undergraduates. *International Journal of Entrepreneurship and Small Business*, 9(1), 86-109.
- Wang, Q., Bauer, K., & Liang, K. (2010). Toward a multidisciplinary entrepreneurship education: a case study of the community entrepreneurship program at the University of Vermont. *International Journal of Innovation and Regional Development*, 2(1-2), 84-95.
- Westhead, P., & Solesvik, M. Z. (2015). Entrepreneurship education and entrepreneurial intention: Do female students benefit? *International Small Business Journal*, 34(8), 979-1003.
- World Map. (2019). How Many Countries are in the World? Retrieved from <http://www.worldatlas.com/nations.htm>
- Yatu, L., Bell, R. & Loon, M. (2018), Entrepreneurship Education Research in Nigeria: Current foci and future research agendas. *African Journal of Economic and Management Studies* 9(2), 165-177.
- Zhang, Y., Duysters, G., & Cloudt, M. (2014). The role of entrepreneurship education as a predictor of university students' entrepreneurial intention. *International Entrepreneurship and Management Journal*, 10(3), 623-641.